TECHNOLOGY ADMINISTRATION

OFFICE OF THE UNDER SECRETARY/OFFICE OF TECHNOLOGY POLICY

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

NATIONAL TECHNICAL INFORMATION SERVICE

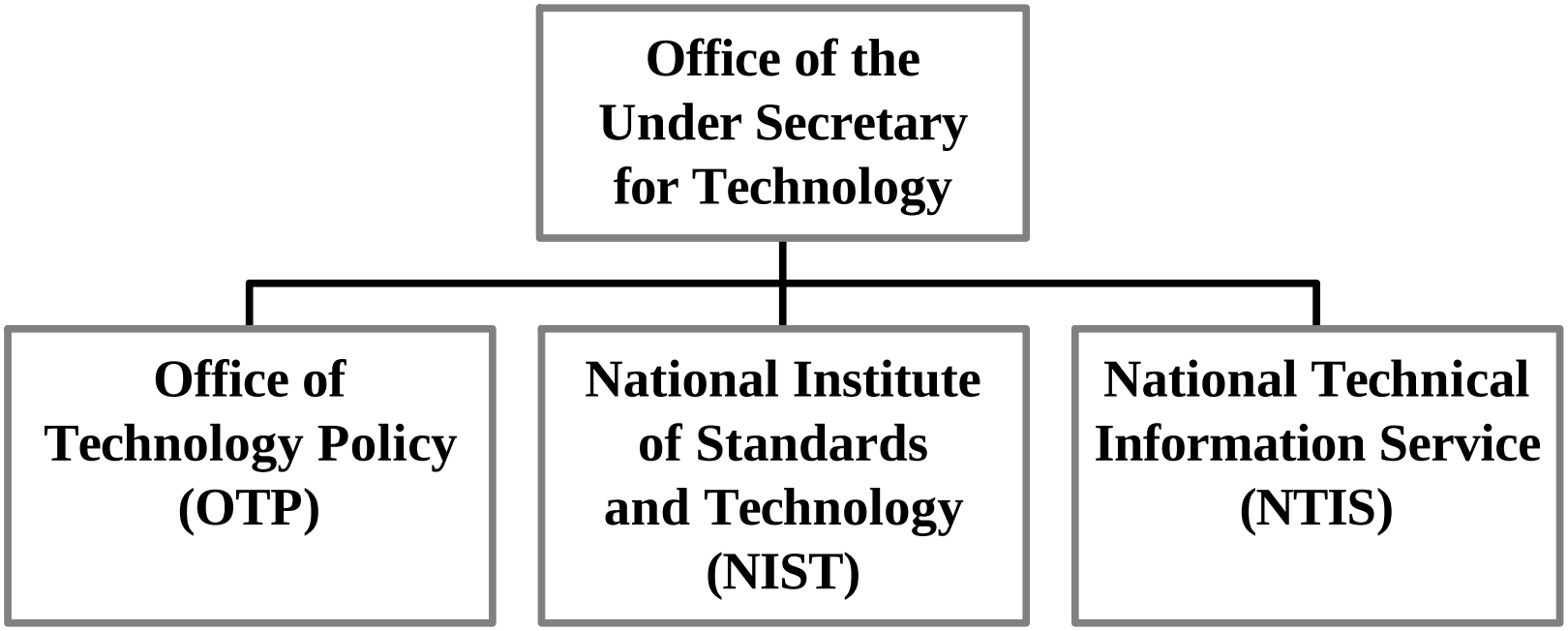
FISCAL YEAR 2001

BUDGET REQUEST TO CONGRESS

DEPARTMENT OF COMMERCE
TECHNOLOGY ADMINISTRATION
and
OFFICE OF THE UNDER SECRETARY/OFFICE OF TECHNOLOGY POLICY
Budget Estimates, Fiscal Year 2001
Congressional Submission

Table of Contents

Technology Administration



[This page left blank intentionally.]

DEPARTMENT OF COMMERCE
TECHNOLOGY ADMINISTRATION
Budget Estimates, Fiscal Year 2001
Congressional Submission

GENERAL STATEMENT

Goals of the Program

More than ever before, U.S. economic growth and prosperity depend on technology. Technology underpins America's fastest growing industries and high wage jobs and provides the tools necessary to compete in every business. The link between technological advancement and economic prosperity is clear: technology may be the single most important determining factor in sustained economic growth. Leading economists estimate that technology accounts for as much as 50 percent of the Nation's long-term economic growth, and the study, "Technology, Economic Growth, and Employment: New Research from the Department of Commerce," found that firms employing advanced technologies are significantly more productive, pay higher wages, offer more secure jobs, and increase employment more rapidly than those that do not.

Meanwhile, global competition is intensifying. Nations everywhere have recognized the link between technology and growth and are rapidly expanding their scientific and technological capabilities. Their governments are developing a range of policies and programs to enhance the competitiveness of their industries and fuel technology-driven growth and job creation. These governments are also aggressively targeting technical capabilities and technologies in newly emerging and strategic markets for the benefit of their companies. There is every indication that the competitive pressure will only increase.

The U.S. has sought to address these new economic and competitive realities by developing both domestic and international policies and programs, in partnership with American industry, that enhance U.S. competitiveness in the global marketplace and maximize technology's contribution to national economic growth, job creation, and quality of life. A clear role for government has been articulated in fostering the development of civilian technology in partnership with industry and emphasizing the creation of a favorable business climate. The Commerce Department's Technology Administration (TA) serves as the focal point for these efforts, advocating an agenda to ensure that American companies and workers have the tools needed to compete and win in today's global economy. The Technology Administration is the primary Federal agency charged with the explicit mission of working with U.S. industry to maximize technology's contribution to U.S. economic growth. The Technology Administration seeks to encourage the development of the technological infrastructure required to support U.S. industry through the 21st century; to foster the development, diffusion,

and adoption of new technologies; to disseminate technological information; and to create a business environment conducive to innovation. These efforts support Department of Commerce strategic goals to promote economic growth and to stimulate innovation for competitiveness. Led by the Under Secretary for Technology, the Technology Administration fulfills its responsibilities through its component agencies and the Office of the Under Secretary.

The Office of the Under Secretary for Technology provides policy guidance to the Secretary of Commerce and the Technology Administration's component agencies and serves as an advocate for innovation and industrial competitiveness within and outside of government. The Under Secretary coordinates the civilian technology efforts of all Federal agencies and helps to shape Federal civilian R&D priorities based upon the views of industry. The Under Secretary also provides counsel to the Secretary of Commerce on all matters affecting innovation and coordinates with counterparts in the trade and economic agencies to create unified, integrated trade and technology policies. Pursuant to this role, the Under Secretary also oversees the Office of Technology Policy (OTP) and Office of Space Commercialization (OSC).

The **Office of Technology Policy** (OTP) is the only office in the Federal government whose explicit mission is to work in partnership with the private sector to develop, coordinate, and advocate national policies that maximize technology's contribution to U.S. competitiveness, economic growth, the creation of high-wage jobs, and the improvement of living standards for all Americans. OTP's international activities include listening to U.S. industry's problems accessing foreign technology, advocating for policies and programs to eliminate impediments to accessing foreign technology, and participating in bilateral and multilateral technology policy activities in countries and markets of strategic importance. The **Office of Space Commercialization** is the principal office within the Department of Commerce for the coordination of space-related issues, programs and initiatives. The goal of the Office is to foster an economic and policy environment that ensures the international competitiveness of the U.S. commercial space industry, and its activities include policy development, market analysis, export promotion, international discussions and outreach and education.

The **National Institute of Standards and Technology** (NIST) works with U.S. industry to address technology needs, delivering broadly useful results shared among companies, industries, and consumers. In addition to its core measurement, testing, and standards functions, NIST also conducts three key extramural programs: the Advanced Technology Program, to stimulate the development of high risk, broad impact technologies by U.S. firms; the Manufacturing Extension Partnership, to help smaller businesses adopt new manufacturing and management technologies; and the Baldrige National Quality Program, to help U.S. business and other organizations improve the performance and quality of their operations by providing clear standards and benchmarks of quality.

Statement of Objectives

The Technology Administration, with its component agencies, is uniquely suited to provide a comprehensive and cohesive approach to promoting technology development and diffusion that furthers U.S. industrial competitiveness. As a policy agency, the Technology Administration works with industry and other Federal agencies to develop and advocate policies that foster a strong innovation climate. As a programmatic agency, the Technology Administration helps foster strong communities by providing the Nation's core measurement, testing and standards; stimulating the development of high risk broad impact technologies; helping smaller business adopt new manufacturing and management technologies; and helping U.S. industries improve their performance and quality. In FY 2001, the Technology Administration will continue to promote the development and diffusion technologies critical to sustained economic growth for our Nation's communities through a comprehensive mix of policy and programmatic activities. Outlined below are highlights of the Technology Administration's major initiatives for FY 2001.

Accelerating the Transition to Electronic Commerce

U.S. businesses need help to make the transition to a new way of doing business driven by electronic commerce (e-commerce). While retail sales using e-commerce are well publicized, business-to-business e-commerce is actually a much larger sector (predicted to surpass $1 trillion per year by 2002) with greater impact on the economy. Businesses use e-commerce for automated ordering of supplies, to exchange data specifying products to be manufactured, to conduct financial transactions, and for many other purposes. Companies not effectively using business-to-business e-commerce in the future will likely not thrive, and may not even survive. TA is already helping the Nation transition to the new e-commerce-driven economy and is requesting additional resources to more effectively facilitate this change in partnership with the private sector.

*E-commerce tools for small businesses (**MEP/Electronic Commerce Outreach -- $15,000,000 and 4 positions**).* TA's electronic commerce initiative will provide tools for small businesses to effectively adopt and use business-to-business e-commerce. With fewer information technology resources, small businesses are often at a disadvantage in trying to work with larger companies through business-to-business e-commerce. NIST's Manufacturing Extension Partnership (MEP), in partnership with the Small Business Administration and the Department of Agriculture, will develop a Jump Start Kit and other tools to help small business fully participate in e-commerce. MEP's nationwide system of centers and offices will help disseminate the tools to small businesses and provide additional support in adopting electronic business practices.

*Standards for electronic data exchange (**Manufacturing Interoperability -- $4,000,000 and 16 positions**).* Businesses are increasingly using e-commerce to exchange technical electronic data with suppliers specifying products to be manufactured. However, lack of standards to exchange highly-complex data among different software programs imposes a productivity loss of $1 billion annually in the automotive supply chain alone. NIST will develop standards and technologies to improve software interoperability for such applications as product data exchange.

*Wireless e-commerce (**Information Technology for the 21st Century -- $1,000,000 and 3 positions**).* Networks comprised of wires and optical fiber currently form the core of e-commerce information exchange, but impose restrictions on mobility, and accessibility and limit the amount of information that can be exchanged. Wireless networks represent the future of e-commerce communications, but substantial technical advances are needed to enable widespread adoption of advanced wireless networks. NIST will develop new materials, standards, and technologies to enable the success of wireless communications and networking.

Expanding Commerce's Partnerships with Minority-Serving Institutions

Both individuals and the Nation suffer from the lack of full participation of minorities in the increasingly technology-driven economy. Minority-serving institutions (MSIs) are an underutilized resource for expanding participation of all citizens in the new economy through improved science and technology education and training. With the pool of well-trained U.S. technical professionals falling far behind projected needs, the Nation cannot ignore MSIs, which educate a disproportionately large number of minority scientists and engineers but generally suffer from a lack of resources to provide top quality training. MSIs include Historically Black Colleges and Universities (located in 20 states, the District of Columbia, and the Virgin Islands), Hispanic-Serving Institutions (9 states and Puerto Rico), and Tribal Colleges and Universities (12 states).

*Partnering with Minority-Serving Institutions (**Minority-Serving Institutions -- $8,000,000 and 2 positions**).* NIST will partner with MSIs on joint technical projects benefiting both NIST and the MSIs and will help build capacity for training minority scientists, engineers, and technicians by improving the training and research experience of MSI faculty and providing research opportunities for undergraduate and graduate MSI students.

*Expanding technical training opportunities at NIST (**Postdoctoral Fellowship Program -- $3,000,000 and 22 positions**).* NIST will expand its highly successful NIST/National Research Council postdoctoral fellowship program which brings top young scientists and engineers to NIST for advanced research and training, with increased emphasis on partnering with MSIs to identify top candidates. The fellowship program enhances technology transfer among NIST, universities, and industry, and serves as an important tool to recruit new NIST technical staff.

Establishing Safeguards Against Unconventional National Security Threats

The National economy and the Federal government are increasingly dependent on information technology (IT) infrastructure -- the computer systems, networks, software, and embedded processors that help ensure military security, enable financial transactions, control delivery of utility services, permit timely communications, control manufacturing, store and disseminate information, and conduct essentially all economic and government

functions. As the Nation becomes increasingly dependent on these complex, extensively inter-connected IT infrastructures, we face greater risk that critical economic and government functions can be disrupted by purposeful attack (cyber-terrorism and physical attacks), by natural disasters, by human error, or by equipment failure. The high degree of inter-connectivity means that -- without proper design or precaution -- large sectors of the economy or of critical government services could be disrupted by even limited attacks or systems failures. TA will address the crucial problem of IT critical infrastructure protection (CIP) through three complementary programs that combine public and private sector resources to address current and future national IT security needs: (1) commissioning a team of experts to identify and fix current IT security vulnerabilities in Federal agencies using existing technology; (2) grants to industry and universities to develop world-leading computer security and IT infrastructure protection research and development programs to ensure that the Nation can continue to protect critical information infrastructures against more sophisticated future threats; and (3) NIST research and development in specific IT infrastructure protection areas where the government already has extensive expertise. This proposed work also responds to the Presidential priority of protecting critical national infrastructures, as described in Presidential Decision Directive #63 and other communications.

*Expert team to identify and help fix Federal IT security vulnerabilities (**CIP Expert Review Team -- $5,000,000 and 11 positions**).* NIST will establish a team of computer security experts to help Federal agencies identify vulnerabilities in their IT systems and fix them using existing technology. Vulnerabilities and possible repairs will be identified in software, computers, networks, and other IT resources. For FY 2001 only, the team will be supplemented with a one-time $3 million contingency fund to help agencies fix the most critical vulnerabilities. The team will continue working after FY 2001 with a $2 million base.

*Grants to develop world-leading private sector IT security research and development capacity in the U.S. (**Institute for Information Infrastructure Protection -- $50,000,000 and 16 positions**).* NIST will establish the Institute for Information Infrastructure Protection to fund private sector (industry and universities) research and development of new IT security techniques to meet future needs for protecting the Nation's critical IT infrastructures. As the Nation becomes more dependent on IT infrastructure, and as threats from cyber-attacks become more sophisticated, the Nation must invest in both short-term and long-term research to ensure the future security of our IT infrastructure. Institute funding will support not only specific IT security research programs, but also will help the Nation build long-term capacity for IT infrastructure protection research and development, including the training of the next generations of IT security professionals and researchers.

*NIST information technology security research and development (**CIP Research and Development -- $5,000,000 and 8 positions**).* NIST will conduct research to develop new solutions to protect certain segments of public and private sector critical information infrastructure, including advanced cryptography, development of standard security management procedures and practices, and protection of supervisory systems (used to control public utilities, automated building systems, automated manufacturing systems, and other applications). NIST will build on its unique existing expertise in these areas to help protect both public and private IT assets.

Addressing Critical Construction Needs

*NIST Facilities **($4,482,000)**.* Industry and science look to NIST to measure reliably everything from length, to time, to mass, to electric current before industry or science come to a roadblock in the pursuit of a better product or new understanding of the way the world works. In order to serve industry reliably, NIST must repair, upgrade, or replace existing facilities. In FY 2001, NIST will take the first step toward increasing its base for safety, capacity, maintenance, and major repairs. Planned efforts include a wide range of projects, such as continued upgrades to the fire safety system, removal of hazardous asbestos materials, replacement of compressors or antiquated control systems and electrical switchgear, replacement and repair of selected roofs and roads, and improved accessibility for the handicapped. Many of these projects have been deferred in previous years to the point where they present risks for safety, critical failures, or non-compliance with building codes. NIST also will begin the first step to complete several urgently needed construction and major renovation projects on NIST's Boulder, Colorado campus with the design for primary electrical service.

Other Priorities

*Effective program and service delivery (**Meeting Our Unfunded Mandates -- $500,000**).* The Under Secretary is given responsibility by the Stevenson-Wydler Technology Innovation Act for working in partnership with the private sector to develop, coordinate, and advocate national policies that maximize technology's contribution to U.S. economic growth and improvement of living standards for all Americans. Subsequent instructions from Congress and the Administration have increased the Under Secretary's responsibilities to include coordination within the Department of space commercialization issues and management of the Partnership for a New Generation Vehicle's government-industry partnership. The proposed increase will strengthen the infrastructure the Office of the Under Secretary needs to improve its effectiveness in developing and advocating national technology policies in four key areas.

- The Office of the Under Secretary will expand the Office of Space Commercialization (OSC) to enable it to meet new Congressional mandates and Presidential initiatives. OSC will respond to Congressional mandates to increase its space market analysis by compiling a comprehensive, coordinated database of space industry statistics and trends, analyzing the database, developing forecasts on future trends, and disseminating this information to government policy makers and to the public. OSC will support Presidential

mandates creating a senior level Interagency Global Positioning System (GPS) Executive Board by managing the day-to-day activities of the newly created GPS Executive Secretariat within the Department of Commerce. Additionally, OSC will respond to Congressional direction by identifying areas where commercially available technologies can be applied to a broad range of government agencies to boost worker productivity and increase efficiency.

- With respect to the Partnership for the Next Generation Vehicle (PNGV), the Office of the Under Secretary will develop an economic roadmap identifying actions needed to accelerate commercialization of the PNGV technologies, while minimizing local economic discontinuities as automotive production shifts to advanced automotive technologies. The Technology Administration will execute a two-year economic study of the expected "new" and dislocated manufacturing processes; conduct forums of interested parties to develop an economic roadmap for action; and conduct outreach to state and local governments, U.S. automotive suppliers, fuel suppliers, and other key businesses to help them understand and plan for the anticipated business and technology changes.

- To improve its monitoring of the results of government-industry research partnerships, the Office of the Under Secretary will expand the breadth and depth of its reporting on agency technology transfer activities to include measurements that help characterize laboratory management of intellectual property, as well as Cooperative Research and Development Agreement (CRADA) activity.
- The Office of the Under Secretary will also seek to increase the visibility and impact of the National Medal of Technology program by using its national network of connections with industry, Federal R&D agencies, and state and local government to increase the number of higher quality Medal nomination submissions, extend outreach to under-represented communities, and expand media coverage to advance public understanding of technology.

*Stimulating the development of advanced technology in the Nation (**Advanced Technology Program -- $31,821,000**).* NIST's Advanced Technology Program (ATP) provides co-funding to the private sector to accelerate the development of high-risk, broadly enabling technologies, thus helping to sustain U.S. global competitiveness. ATP is a competitive, cost-shared R&D partnership program with companies of all sizes, universities, and other research organizations. While government provides the catalyst, industry conceives, cost-shares, manages, and executes all ATP projects. Proposals are rigorously evaluated by technical and business experts who assess the technological merit and potential economic benefits of each proposal. ATP is in its tenth year of existence, and the evidence shows that the program is working well. By stimulating collaboration and investing in high-risk, path-changing, and broadly enabling R&D, the ATP is changing the nature of the R&D projects that companies undertake, accelerating R&D, reducing time to market, fostering "new-to-the-world" innovations, and stimulating broader, more challenging technology development. The potential benefits forecast by economic studies for just three projects exceeds the total costs of the program to date. ATP's cost-shared projects involve more than

1,000 formal participants and another 1,000 subcontractors, including companies of all sizes, universities, and other research organizations. Over half of ATP awards have gone to small firms. The FY 2001 request would permit awarding of approximately $65 million in new R&D funding.

Nanotechnology: enabling new science and technology breakthroughs at the atomic scale ***(Nanotechnology -- $10,000,000 and 16 positions)***. Nanotechnology involves understanding and manipulating things at the scale of individual atoms or small groups of atoms. At this tiny scale (on the order of a nanometer or about one billionth of an inch), the properties of materials and devices can be radically different than at "normal" scales or even microscopic sizes. For example, nanotechnology holds the promise of developing materials ten times stronger than steel but ten times lighter or of building ultra-small robotic devices (too small to be seen by the unaided eye) that could travel through the human body to deliver medicines or find cancer cells and destroy them without surgery. Nanotechnology will stimulate broad advances in all major economic sectors, including health care, semiconductors, communications, defense, biotechnology, and information technology. NIST is participating with several other Federal agencies in the President's National Nanotechnology Initiative to develop the science and technology to make nanotechnology visions a reality. NIST's role will be to develop the measurements and standards needed by industry, universities, and government research labs to exploit nanotechnology.

*New super-fast methods of materials and chemical research (****Combinatorial Methods -- $4,500,000 and 13 positions****).* Combinatorial methods describes a new way of exploiting advances in information technology and automation to greatly speed research, development, and testing of new materials -- from pharmaceuticals to metal alloys to ceramics to complex chemicals to biological products. It is basically a set of methods to simultaneously conduct a very large number of experiments in parallel, rather than the traditional method of conducting one experiment, checking the results, and then conducting another experiment with different conditions. Combinatorial methods have been used very successfully in the pharmaceuticals industry but have not yet been broadly adopted in other areas with great potential, including materials science, chemical synthesis, and biotechnology. NIST will develop new measurement techniques and standards to speed the application of combinatorial methods to other fields.

Exhibit 3A

SUMMARY OF GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

DoC Strategic Goal	Bureau Goal	Bureau Objective	Office/ Program[1]	Outputs	Outcomes
1. Promote economic growth.	Improve the technological capability, productivity, and competitiveness of small manufacturers.	Transform a larger percentage of the Nation's small manufacturers into high performance enterprises.	NIST MEP	Advisory services provided; companies served.	Quality assessment: [2] Customer surveys and MEP National Advisory Board. Outcomes: Improved sales; inventory savings; labor and material savings; and capital investment attributed to MEP assistance.

[1] ATP = Advanced Technology Program
BNQP = Baldrige National Quality Program
IIIP = Institute for Information Infrastructure Protection
MEP = Manufacturing Extension Partnership
NIST = National Institute of Standards and Technology
NTIS = National Technical Information Service
US/OTP = Office of the Under Secretary/Office of Technology Policy

[2] A description of NIST's overall performance evaluation system is provided in the NIST General Statement (Exhibit 3). Specific information on performance measurement also is included in each subactivity description – see each Exhibit 12.

DoC Strategic Goal	Bureau Goal	Bureau Objective	Office/ Program[1]	Outputs	Outcomes
1. (Continued)	Assist U.S. businesses and other organizations in continuously improving their productivity and efficiency by adopting performance and quality management practices.	Develop and continuously improve the Malcolm Baldrige National Quality Award, broadly disseminate criteria for evaluating performance, and promote quality awareness and performance excellence. Promote quality awareness and business excellence practices of small service businesses and manufacturers.	NIST BNQP	Number of applications to MBNQA and Baldrige-based state programs; number of criteria mailed by BNQA and by Baldrige-based state & local programs; number of BNQP documents viewed or downloaded from the BNQP; and number of state and local quality programs supported.	Quality assessment: [2] Stakeholder review/National Quality Foundation. Outcomes: Economic study assessing impact on corporate performance management practices; profitability; and other factors.

DoC Strategic Goal	Bureau Goal	Bureau Objective	Office/ Program[1]	Outputs	Outcomes
2. Stimulate innovation for competitiveness	Provide technical leadership for the Nation's measurement and standards infrastructure, and assure the availability of essential reference data and measurement capabilities.	Anticipate and address the Nation's most important needs for physical and information-based measurements and standards.	NIST Measurement and Standards Laboratories Program	Technical publications, standard reference materials, standard reference data; construction completed on schedule and within 110 percent of estimated cost.	Quality assessment: [2] Peer review. Outcomes: Economic impact studies of R&D spillovers to private industry; increased R&D productivity and efficiency; lower transaction costs; increased product quality.
		Strengthen the national system of standards, measurement, measurement traceability, and conformity assessment. Provide leadership in harmonizing international measurements and standards to facilitate international trade.	NIST Measurement and Standards Laboratories Program	Calibrations and tests; Standards committees involving NIST staff and chairmanships held; standard reference materials. Leadership positions held on international committees.	Quality assessment: [2] Peer review. Outcomes: Economic impact studies of R&D spillovers to private industry; increased R&D productivity and efficiency; lower transaction costs; increased product quality.

DoC Strategic Goal	Bureau Goal	Bureau Objective	Office/ Program[1]	Outputs	Outcomes
2. (Continued)	Accelerate technological innovation and the development of new technologies that underpin future economic growth.	Encourage industry to increase investment in R&D for high-risk, broad-impact technologies. Accelerate the commercialization and broad diffusion of ATP-funded technologies.	NIST ATP	Cumulative number of technologies under commercialization; cumulative number of publications; cumulative number of patents filed and patents licensed; percent of projects involving R&D consortium reporting accelerated R&D cycle time, and reporting increase in longer-term and/or high-risk R&D.	Outcomes: Economic impact studies of R&D and economic spillovers; R&D composition; estimates of ratio of benefits to costs and social rate of return.
	Increase the security, reliability, and survivability of the information technology systems and networks that comprise the Nation's information infrastructure.	Increase the Nation's R&D capacity for information infrastructure protection.	NIST IIIP	Successful program establishment, as evidenced by such activity metrics as an operations plan, adequate staffing, formation of oversight and advisory boards, etc.	

Exhibit 5

Department of Commerce
Technology Administration
Office of the Under Secretary / Office of Technology Policy
Salaries and Expenses
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

Page No.		Positions	FTE	Budget Authority	Direct Obligations
	Currently Available, 2000	52	50	$7,945	$7,963
	less: Unobligated balance start of year				(18)
US / OTP - 5	plus: 2001 Adjustments to base	0	0	271	271
	2001 Base Request	52	50	8,216	8,216
	plus: 2001 Program changes	0	0	500	500
	2001 Estimate	52	50	8,716	8,716

			1999 Actual		2000 Currently Available		2001 Base		2001 Estimate		Increase / (Decrease) Over 2001 Base	
	Comparison by activity:		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
US / OTP - 11	Under Secretary for Technology /	Pos. / Approp	52	$9,495	52	$7,945	52	$8,216	52	$8,716	0	$500
	Office of Technology Policy	FTE / Obl.	43	10,842	50	7,963	50	8,216	50	8,716	0	500
	TOTALS	Pos. / Approp	52	9,495	52	7,945	52	8,216	52	8,716	0	500
		FTE / Obl.	43	10,842	50	7,963	50	8,216	50	8,716	0	500
	Adjustments to obligations:											
	Prior year recoveries			0		0		0		0		0
	Unobligated balance, start of year			(1,638)		(18)		0		0		0
	Unobligated balance, expiring			273		0		0		0		0
	Unobligated balance, end of year			18		0		0		0		0
	Financing from transfers:											
	Transfers from other accounts (-)			0		0		0		0		0
	Appropriation			9,495		7,945		8,216		8,716		500

Exhibit 6

Department of Commerce
Technology Administration
Office of the Under Secretary/Office of Technology Policy
Salaries and Expenses
SUMMARY OF REIMBURSABLE OBLIGATIONS
(Dollar amounts in thousands)

	Comparison by activity:		1999 Actual Personnel	1999 Actual Amount	2000 Currently Available Personnel	2000 Currently Available Amount	2001 Base Personnel	2001 Base Amount	2001 Estimate Personnel	2001 Estimate Amount	Increase/ (Decrease) Over 2001 Base Personnel	Increase/ (Decrease) Over 2001 Base Amount
US/OTP -12	Under Secretary for Technology/	Pos./BA	1	$147	1	$575	1	$575	1	$575	0	$0
	Office of Technology Policy	FTE/Obl.	1	147	1	575	1	575	1	$575	0	0
	TOTALS	Pos./BA	1	147	1	575	1	575	1	575	0	0
		FTE/Obl.	1	147	1	575	1	575	1	575	0	0

Department of Commerce
Technology Administration
Office of the Under Secretary/Office of Technology Policy
SUMMARY OF FINANCING
(Dollar amounts in thousands)

	1999 Actual	2000 Currently Available	2001 Base	2001 Estimate	Increase/ (Decrease) Over 2001 Base
Total Obligations	$10,989	$8,538	$8,791	$9,291	$500
Financing:					
Offsetting collections from:					
Federal funds	(147)	(575)	(575)	(575)	$0
Non-Federal sources	0	0	0	0	0
Recoveries	0	0	0	0	0
		0	0	0	0
Unobligated balance, start of year	(1,638)	(18)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	18	0	0	0	0
Unobligated balance expiring	273	0	0	0	0
Budget Authority	9,495	7,945	8,216	8,716	500
Financing:					
Transfer to other accounts	0	0	0	0	0
Transfer from other accounts	0	0	0	0	0
Appropriation	9,495	7,945	8,216	8,716	500

[This page is left blank intentionally]

Department of Commerce
Technology Administration
Office of the Under Secretary/Office of Technology Policy
Salaries and Expenses
ADJUSTMENTS TO BASE
(Dollar amounts in thousands)

	Perm Pos	FTE	Amount
Transfer:			
Transfer to GA for security……..	…	…	(15)
Other Changes:			
2000 Pay raise (annualization)……	…	…	$51
2001 Pay raise……	…	…	104
Within-grade step increases…….……	…	…	6
One less compensable day……	…	…	(13)
Personal Benefits:			
Civil Service Retirement System (CSRS)……	…	…	(18)
Federal Employees' Retirement System (FERS)……	…	…	23
Thrift Savings Plan (TSP)……	…	…	4
Federal Insurance Contribution Act (FICA)……	…	…	13
Health Insurance……	…	…	11
Employees' Compensation Fund……	…	…	(11)
Travel and transportation of persons……			
Per diem…….	…	…	11
Common carrier……..	…	…	8
Rental payments to GSA……	…	…	13
Communications, utilities, and miscellaneous charges……	…	…	2
Printing and reproduction……	…	…	6
Other services……			
Executive development & leadership training (SES 2000)……	…	…	35
Other contracts/services……	…	…	30
Working Capital Fund (GA)……	…	…	6
Supplies and materials……	…	…	2
Equipment……	…	…	3
Total, Adjustments to Base…….	**…**	**…**	**271**

Department of Commerce
Technology Administration
Office of the Under Secretary/Office of Technology Policy
Salaries and Expenses
JUSTIFICATION OF ADJUSTMENTS TO BASE
(Dollar amounts in thousands)

	FTE	Amount
Transfer:		
Transfer to GA for security	0	($15)

A decrease of $15,000 reflects a transfer to the General Administration appropriation for security costs previously funded by the GA, WCF.

Other Changes:

2000 Pay raise (annualization)	0	51

A pay raise of 4.8 percent was effective January 1, 2000.

Total cost in FY 2001 of 2000 pay raise	$191,000
Less amount requested in FY 2000	(140,000)
Less amount absorbed in FY 2000	0
Amount requested in 2001 to provide full-year cost of 2000 pay raise	51,000
Payment to Working Capital Fund	0
Total, FY 2000 pay raise increase in FY 2001	51,000

2001 Pay increase and related costs	0	104

A general pay raise of 3.7 percent is assumed to be effective January 1, 2001.

Total cost in FY 2001 of pay increase	$96,000
Less amount absorbed in FY 2001	0
Amount requested for FY 2001 pay increase	96,000
Payment to Working Capital Fund	8,000
Total adjustment for FY 2001 pay increase	104,000

Within-grade step increases 0 6

An increase of $6,000 is required to cover the cost of within-grade step increases.

One less compensable day..... 0 (13)

The decreased cost of one less compensable day in FY 2001 compared to FY 2000 is calculated by dividing the FY 2000 estimated personnel compensation and applicable benefits by 261 compensable days.

Personnel benefits..... 0 22

Civil Service Retirement System (CSRS)	(18)
Federal Employees' Retirement System (FERS)	23
Thrift Savings Plan (TSP)	4
Federal Insurance Contribution Act (FICA) - OASDI	13
Health Insurance	11
Employees' Compensation Fund	(11)

Civil Service Retirement System (-$18,000) - The number of employees covered by the Civil Service Retirement System (CSRS) continues to drop as positions become vacant and are filled by employees who are covered by the Federal Employees' Retirement System (FERS). The estimated percentage of payroll for employees covered by CSRS will drop from 30.6 percent in FY 2000 to 23.4 percent in FY 2001. Contribution rates will remain the same.

Payroll subject to retirement systems ($2,966,000)	
Cost of CSRS contributions in FY 2001 ($2,966,000 x .234 x .0851)	$59,063
Cost of CSRS contributions in FY 2000 ($2,966,000 x .306 x .0851)	77,236
Total adjustment-to-base	(18,173)

Federal Employees' Retirement System ($23,000) - The number of employees covered by FERS continues to rise as employees covered by CSRS leave and are replaced by employees covered by FERS. The estimated percentage of payroll for employees covered by FERS will rise from 69.4 percent in FY 2000 to 76.6 percent in FY 2001. The contribution rate will remain at 10.7 percent in FY 2001.

Payroll subject to retirement systems ($2,966,000)	
Basic benefit cost in FY 2001 ($2,966,000 x .766 x .107)	$243,099
Basic benefit cost in FY 2000 ($2,966,000 x .694 x .107)	220,249
Total adjustment-to-base	22,850

Thrift Savings Plan ($4,000) - The cost of agency contributions to the Thrift Savings Plan will also rise as FERS participation increases. The contribution rate is expected to remain 2 percent.

Thrift plan cost in FY 2001 ($2,966,000 x .766 x .02)	$45,439
Thrift plan cost in FY 2000 ($2,966,000 x .694 x .02)	41,168
Total adjustment-to-base	4,271

Federal Insurance Contributions Act (FICA) - OASDI ($13,000) - As the percentage of payroll covered by FERS rises, the cost of OASDI contributions will increase. In addition, the maximum salary subject to OASDI tax will rise from $73,275 in FY 2000 to $78,450 in FY 2001. The OASDI tax rate will remain 6.2 percent in FY 2001.

FERS payroll subject to FICA tax in 2001 ($2,966,000 x .766 x .866 x .062)	$121,986
FERS payroll subject to FICA tax in 2000 ($2,966,000 x .694 x .857 x .062)	109,371
Increase (FY 2000-FY 2001)	12,615

Health insurance ($11,000) - Effective January 1999, US/OTP's contribution to Federal employees' health insurance premiums increased by 14.0 percent. This percentage was applied against the FY 2000 estimate.

Employee's Compensation Fund (-$11,000) - The Employees' Compensation Fund bill for the year ending June 30, 1999 is $10,621,000 lower than the bill for the year ending June 30, 1998. The charges will be reimbursed to the Department of Labor pursuant to 5 U.S.C. 8147.

Travel and transportation of persons..... 0 19

Per Diem ($11,000) - Effective January 1999 the General Services Administration raised per diem rates. This increase results in a 6.7 percent increase to OS/OTP. This percentage was applied to the FY 2000 estimate.
Common Carrier ($8,000) – An additional $8,000 is requested to cover the cost of purchasing airline tickets in contracting with a travel agency under the new method.

Rental payments to GSA..... 0 13

GSA rates are projected to increase 2.1 percent in FY 2001. This percentage was applied to the FY 2000 estimate.

Communications, utilities, and miscellaneous charges..... 0 2

This adjustment to base is required to pay the additional cost of communications and miscellaneous charges. The increased costs are based on applying the 1.5 percent deflator to the FY 2000 estimate for rental of ADP equipment, office equipment, telephone, and other equipment for an increase of $2,000.

Printing and reproduction..... 0 6

GPO has provided an estimated rate increase of 3.3 percent. This percentage was applied to the FY 2000 estimate to arrive at an increase of $5,709.

Other services..... 0 56

Executive Development and Leadership Training ($35,000) – Consistent with the Department's SES 2000 plan, an increase of $5,000 for each currently onboard SES position is required for Executive Development and Leadership Training. An increase of $35,000 is requested.

Other Contracts/Services ($30,000) - US/OTP is requesting $30,000 to cover increased costs in other services. Other services include management and professional support services, training, maintenance of equipment, and ADP services. The increase was calculated by applying the 1.5 percent deflator to the FY 2000 estimate for other services.

Working Capital Fund (GA) ($6,000) – An additional amount of $6,000 is required to fund cost increases in the Departmental Working Capital Fund.

Supplies and materials	0	2

The $1,860 increase was calculated by applying the deflator of 1.5 percent to the FY 2000 estimate for supplies and materials.

Equipment	0	3

Office-ADP-Other equipment ($3,000) - The $3,000 increase was calculated by applying the 1.5 percent deflator to the FY 2000 estimate for office machines, ADP, and other equipment.

Total, Adjustments to Base	0	271

Department of Commerce
Technology Administration
Office of the Under Secretary/Office of Technology Policy
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

Activity: Under Secretary for Technology
Subactivity: Under Secretary for Technology/
Office of Technology Policy

Line Item		1999 Actual Personnel	1999 Actual Amount	2000 Currently Available Personnel	2000 Currently Available Amount	2001 Base Personnel	2001 Base Amount	2001 Estimate Personnel	2001 Estimate Amount	Increase/ (Decrease) Over 2001 Base Personnel	Increase/ (Decrease) Over 2001 Base Amount
Under Secretary for Technology/	Pos./BA	52	$9,495	52	$7,945	52	$8,216	52	$8,716	0	$500
Office of Technology Policy	FTE/Obl.	43	10,842	50	7,963	50	8,216	50	8,716	0	500

Technology Administration
Office of the Under Secretary/Office of Technology Policy
PROGRAM AND PERFORMANCE: REIMBURSABLE OBLIGATIONS
(Dollar amounts in thousands)

Activity: Under Secretary for Technology
Subactivity: Under Secretary for Technology
Office of Technology Policy

Line Item		1999 Actual Personnel	1999 Actual Amount	2000 Currently Available Personnel	2000 Currently Available Amount	2001 Base Personnel	2001 Base Amount	2001 Estimate Personnel	2001 Estimate Amount	Increase/ (Decrease) Over 2001 Base Personnel	Increase/ (Decrease) Over 2001 Base Amount
Under Secretary for Technology/	Pos./BA	1	$147	1	$575	1	$575	1	$575	0	0
Office of Technology Policy	FTE/Obl.	1	147	1	575	1	575	1	575	0	0
Total	Pos./BA	1	147	1	575	1	575	1	575	0	0
	FTE/Obl.	1	147	1	575	1	575	1	575	0	0

Department of Commerce
Technology Administration
Salaries and Expenses
JUSTIFICATION OF PROGRAM AND PERFORMANCE
OFFICE OF THE UNDER SECRETARY/OFFICE OF TECHNOLOGY POLICY

Goal Statement

The Technology Administration (TA) is the principal civilian technology agency working with industry to improve U.S. industrial competitiveness, and serves as an advocate for U.S. industry in the Executive Branch, before Congress and in international fora. It discharges this role through the leadership of the Under Secretary; through the Office of Technology Policy's analysis, formulation and advocacy of policies to maximize the contribution of technology to economic growth; through the technology development, diffusion and commercialization programs of the National Institute of Standards and Technology; through the dissemination of technological information by the National Technical Information Service; and through the Office of Space Commercialization, which is the principal office within the Department of Commerce for the coordination of space-related issues, programs and initiatives.

Base Program

The Under Secretary for Technology works in partnership with the private sector to analyze, develop, coordinate, and advocate national policies that maximize technology's contribution to U.S. competitiveness, economic growth, the creation of high-wage jobs, and improvements of living standards for all Americans.

More than ever before, technological leadership is vital to the national interest of the United States. Our ability to harness the power and promise of leading-edge advances in technology will largely determine our national prosperity, security and global influence. Technology underpins our fastest growing industries and high-wage jobs, and provides the tools needed to compete in every business today.

Leading economists believe that technical progress is the single most important determining factor in sustained economic growth, estimated to account for as much as half of the Nation's long-term economic growth over the past 50 years. Federal policies and programs have played an important role in that growth.

Research sponsored by the Federal government has given birth to new industries, such as computers and biotechnology, and propelled U.S. firms into leadership positions in other industries, including aerospace, telecommunications, and pharmaceuticals. As global competition has increased, TA has forcefully advocated improvements in the laws and regulations governing the commercialization of Federal research. These efforts focused on removal of barriers to government-industry cooperative research, increasing incentives for Federal scientists, engineers and laboratories to work with the private sector to move their innovations to the marketplace, improving the speed, flexibility and predictability of the Federal government as a research partner with industry, and ensuring the effective protection of intellectual property. TA continues to conduct research and analysis—in close partnership with U.S. industry, and Federal research agencies—to maximize the taxpayers' return on their investment in Federal research and development.

TA's program and policy activities support the DoC strategic goal to stimulate innovation for American competitiveness.

TA's FY 2001 budget includes support for the Office of the Under Secretary in its oversight activities for NIST, NTIS, OTP, and OSC; the Under Secretary's responsibilities to coordinate and lead several inter-agency and crosscutting civilian technology efforts; OTP's role as the Federal government's premiere civilian technology policy analyst and advocate; and OSC's responsibilities for promoting the commercial use of space and U.S. competitiveness in the sector.

The FY 2001 budget supports the ***Office of Space Commercialization*** (OSC), which is charged with fostering the competitiveness of the U.S. commercial space industry by developing and promoting national policies that encourage the effective commercial use of space. In FY 2001, OSC will continue its role in the development of a new National Space Policy and will conduct a comprehensive market analysis of the space commercialization industry.

The FY 2001 budget supports the Under Secretary's role as the chair of the high-level coordinating committee overseeing the ***Partnership for a New Generation of Vehicles*** (PNGV) initiative, a technological venture as ambitious as any America has attempted. The partnership involves seven Federal agencies, 19 national laboratories, the Nation's automakers, and more than 300 hundred suppliers and universities. PNGV is working to achieve R&D goals in three areas: advanced manufacturing methods; technologies that can lead to near-term improvements in automobile efficiency, safety, and emissions; and research that could lead to vehicle prototypes with a threefold improvement in fuel efficiency. TA supports the operations of the PNGV Secretariat, which is responsible for the technical coordination of the participating Federal agencies, liaison with USCAR (the entity representing the auto industry in the partnership), and basic record keeping for the program.

The FY 2001 budget supports the Under Secretary's participation in the ***Committee on Technology of the President's National Science and Technology Council***. Through this committee, the Under Secretary helps to establish clear national goals for Federal science and technology investments and to ensure that Federal civilian R&D priorities reflect the requirements of industry customers.

The Committee on Technology is currently coordinating several major Administration R&D initiatives in materials, construction and building, manufacturing infrastructure, electronics and automotive technologies.

The FY 2001 budget supports the ***Commerce Science and Technology Fellowship Program*** (ComSci), which will select and place approximately twenty senior government technologists and technology managers in other agencies throughout government to provide them with a broader understanding of the scope of Federal R&D and policy activities.

The FY 2001 budget also supports the international activities of the Under Secretary as the principal U.S. government representative for technology on the ***U.S.-Egypt Partnership for Economic Growth***, the ***U.S.-Israel Science and Technology Commission***, the ***U.S.-Japan Joint High Level Committee***, the ***U.S.-PRC Joint Commission on Scientific and Technological Information***; and other policy dialogues with counterparts in developed and emerging markets.

TA's base resources support the ***Office of Technology Policy's*** (OTP) role as the Federal government's primary advocate for innovation and industrial competitiveness, analyst of civilian industrial technology issues, and incubator for new models of domestic and international technology cooperation. In support of the Under Secretary's responsibilities and the Commerce Department's leadership role in civilian technology policy, OTP must provide timely analysis, support services, and value-added information to other Technology Administration and Commerce Department bureaus, the Secretary of Commerce, the White House, and other Federal agencies.

OTP will expand and improve the system for collecting and assessing data reflecting the activities of the Federal government's technology transfer programs. In response to increasing Congressional interest in understanding the effectiveness of these programs, OTP will be working with the other Federal R&D agencies to create an improved data collection system and to begin the development of measures that will better reflect both the outputs and the outcomes of these programs.

The FY 2001 budget supports the ***National Medal of Technology Program***—America's "Nobel Prize for Technology"—through the nomination and evaluation process, and coordinating the Presidential awards ceremony. Awarded annually by the President, the Medal is our Nation's highest award for technological achievement. By recognizing those whose technological innovations have contributed to American job creation, economic prosperity, increased competitiveness and a higher standard of living, OTP contributes to a better public understanding of the essential role technology plays in today's global economy.

The FY 2001 budget supports the grants administration of the Experimental Program to Stimulate Competitive Technology (EPSCoT) program which is designed to foster development of indigenous technology assets in states and regions traditionally under-represented in Federal R&D funding in order to foster technology-based regional economic growth. EPSCoT has conducted two grant

competitions and most of the projects funded under the first grant competition will be complete or nearing completion. A full-scale program evaluation was begun in FY 2000 assessing the management, direction, effectiveness of the program in meeting its stated objectives, and a current needs assessment will be finalized.

TA Compliance with the Government Performance and Results Act

US/OTP evaluates its performance and plans its work through several evaluation mechanisms: extensive and ongoing consultation with public and private sector stakeholders, selected peer review, and output tracking. These sources of performance evaluation provide diverse and useful information for managing US/OTP's policy development, coordination, and analysis roles. However, no single output measure can capture US/OTP's diverse activities. Moreover, US/OTP's core functions—providing policy advice and influencing the policy-making process—are difficult to characterize quantitatively. Policy analyses and advocacy efforts seek to influence the attitudes and positions of key parties, while actual policy outcomes are determined by multiple institutional, organizational, economic and political factors. For this reason, US/OTP uses activity and output metrics to characterize the program's overall annual performance, such as the number of roundtables, seminars, and negotiations held with industry, government and academia to advance TA policy goals.

Output measure	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Roundtables, seminars, negotiations and other meetings held with industry, government and academia to advance TA policy goals	**25**	**25**	**25**	**25**	**25**	**25**

Department of Commerce
Technology Administration
Office of the Under Secretary
Salaries and Expenses
INCREASE FOR FY 2001
(Dollar amounts in thousands)

		2001 Base		2001 Estimate		Increase/(Decrease) Over 2001 Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Under Secretary for Technology/	Pos./BA	52	$8,216	52	$8,716	0	$500
Office of Technology Policy	FTE/Obl.	50	8,216	50	8,716	0	500

Meeting Our Unfunded Mandates (Effective Program and Service Delivery) - (BA +$500,000, Direct Obligations +$500,000) - To strengthen and expand TA policy, evaluation, and outreach capabilities to meet Congressional mandates and Presidential initiatives in four major areas: commercialization of national space technologies; development of clean and efficient new motor vehicles; critical examination of the Nation's system for transferring technology developed by Federal laboratories to the private sector; and increasing the impact of the National Medal of Technology Program.

The initiative will strengthen four major programs in the Office of the Under Secretary leading to broad impacts on the national economy.

1) TA's Office of Space Commercialization (+$125,000) will accelerate the growth of the U.S. commercial space market by conducting comprehensive market analyses and by promoting increased Federal government use of commercial space technologies that increase productivity and save Federal funds. These efforts should increase private sector investment in and use of the commercial space market which is projected to approach $200 billion by 2007.
2) The Partnership for a New Generation of Vehicles (+$125,000) will develop a strategy to assess the impact of PNGV technologies on the 50,000 suppliers for the $300 billion U.S. automotive industry. Much of the supplier base is unprepared to meet the needs of the major auto manufacturers as Partnership goals are adopted.
3) The economic impacts of national policy for Technology Transfer (+$125,000) from Federal labs to the private sector will be critically examined. More than 3,000 government-industry Cooperative Research and Development Agreements (CRADAs) and more than 500 patent licenses were in force in 1998, but the overall impact of government-industry technology transfer remains unclear.

4) TA will expand the impact of the National Medal of Technology Program (+$125,000) by increasing the number of highest quality nominations and reaching out to under-represented communities.

Problem Magnitude and TA Role:

There are four TA programs in greatest need of additional support to be able to fulfill mandates and enhance the development and application of national technology policy. These programs are directed to specific new technologies likely to change our industries and to cross-cutting policy issues common to the development and diffusion of all new technologies.

1) Space Commercialization.

Aerospace has become the Nation's largest export sector (more than $30 billion in 1998), and the worldwide commercial space market is projected to approach $200 billion by 2007. More than 1,200 commercial satellite launches are expected over the next decade supporting telecommunications, satellite imaging, commercial and personal navigation, and many other applications. Satellites are increasingly important for global telecommunications networks, and satellite links directly and indirectly support a large portion of the $400 billion U.S. telecommunications market. With the end of the Cold War, national security resources such as high resolution satellite imaging and the Global Positioning System (GPS) are being supplemented or replaced by commercial applications. Commercial satellite imaging is crucial to mapping, agriculture, weather forecasting, environmental monitoring, oil and mineral exploration, and many other industries. The $1 billion commercial GPS market is growing rapidly for both commercial navigation (air, ground, and water transport) and personal navigation (including extensive use in new model automobiles). The Administration recognizes the increasing importance of GPS as evidenced by the Vice President's January 1999 announcement of a $400 million initiative modernizing the system to enhance civil, commercial, and scientific applications worldwide. And as the NASA commercial launch program shrinks, it is being replaced and expanded by a strong commercial launch industry. The space industry is an increasingly critical sector of the U.S. economy, with significant impacts on commercial, national security, and foreign policy interests.

TA's Office of Space Commercialization is the only government agency able to analyze the complex economic, policy, and national security implications of the fast-growing and rapidly changing commercial space market. In 1998 Congress made the office the "principal unit for the coordination of space related issues, programs and initiatives within the Department of Commerce" (P.L. 105-309). Congress tasked the office to: (1) promote commercial provider investment in space activities by collecting, analyzing, and disseminating information on space markets, and conducting workshops and seminars to increase awareness of commercial space opportunities; (2) assist U.S. commercial providers in their efforts to conduct business with the United States Government; (3) act as industry advocate within the Executive Branch to ensure commercially available space goods and services are used to meet Federal requirements; (4) ensure the U.S. government does not compete with U.S. commercial providers; (5) promote the export of space-related goods and services; (6) represent the Department of Commerce in developing U.S. policies and in negotiating with foreign countries to ensure free and fair trade in space commerce; and (7) seek removal of legal, policy and institutional impediments to space

commerce. The Director of the Office is also expected to testify at least twice a year before Congressional committees on the overall state of the commercial space industry and on specific issues of concern to the committees.

The Office consists of a small staff covering a broad spectrum of national space concerns, including, but not limited to, launch vehicles and ranges, satellite navigation, satellite imaging, and satellite communications. Given the substantial responsibilities recently mandated by Congress, the fast moving nature of the sector, and its increasing importance to national and economic security, the Office cannot meet its statutory and Presidentially-mandated responsibilities without additional funding.

2) ***Partnership for a New Generation of Vehicles (PNGV).***

PNGV is developing technologies to reduce national dependence on foreign oil and improve the competitiveness of the $300 billion U.S. automotive industry while protecting the environment. The Partnership between the government and DaimlerChrysler, Ford, and General Motors aims to design and produce vehicles with up to three times the fuel economy of current vehicles while meeting stringent future emission requirements. PNGV has made great progress in developing the technologies to meet the fuel efficiency and emissions goals, but the radically different PNGV technologies will require dramatic technical and business changes in the 50,000 U.S. automotive suppliers that supply up to 70 percent of the parts used by the major auto manufacturers. Only a small portion of the Nation's automotive suppliers have been involved in or are aware of PNGV's research activities. Failure of the suppliers to adequately prepare for PNGV-driven changes could result in serious economic consequences for the Nation's automotive suppliers, their approximately two million employees, and many communities around the country—especially in the states of the Midwest—whose economies are highly dependent on the competitiveness of these firms. The changes could also significantly impact the U.S. fuels industry, which employs nearly 1.5 million Americans.

TA leads the Federal PNGV effort, and it hosts several industry outreach programs that could be used to help prepare the Nation's automotive suppliers to meet the PNGV challenges. President Clinton designated TA as the government's PNGV Secretariat to provide leadership for the seven Federal agencies and 19 Federal laboratories in the Partnership. TA is also the primary government contact for the Partnership's industrial partners (DaimlerChrysler, Ford, and General Motors and the U.S. Council for Automotive Research organization) and for the approximately 450 other companies and universities involved in PNGV. TA continues to fulfill this duty effectively. The National Research Council's 5th Annual Review of the PNGV Program states that TA "is doing a commendable job of promoting the interest of the PNGV among government organizations and providing workable interfaces in its proactive support of the program." TA includes several other programs that could make a substantial contribution to meeting the goals and challenges of PNGV, such as:

- U.S. Innovation Partnership (USIP)—a partnership between the Federal government and the states, through the National Governors Association, to promote technology-based economic growth;

- Advanced Technology Program (ATP)— a unique partnership between government and private industry to accelerate the development of high-risk technologies that promise significant commercial payoffs and widespread benefits for the economy; and
- Manufacturing Extension Partnership (MEP)—a nationwide network of centers whose sole purpose is to provide small- and medium-sized manufacturers with the technical and business help they need to stay competitive and succeed.

3) Technology Transfer.

The U.S. employs unique methods of transferring technology from Federal R&D laboratories to the private sector, including Cooperative Research and Development Agreements (CRADAs) and patent licensing. While such programs are very active—more than 3,000 CRADAs in force in 1998; 500 patented licenses granted in 1998 generating $60 million in revenue—little information exists about the effectiveness of the programs in fostering development of new commercial technology. To improve its monitoring of the results of government-industry research partnerships, TA will expand the breadth and depth of its reporting on agency technology transfer activities.

TA has been mandated to analyze the government's use of government-industry partnerships since their inception 15 years ago. The Stevenson-Wydler Technology Innovation Act requires TA to report biennially on Executive Branch implementation of government-industry CRADAs. TA's authorizing committees have stated that more complete data and analysis are needed for Congressional oversight of these programs. TA is also responsible for advising and supporting Federal agencies in their use of these authorities, and it leads an interagency working group that addresses cross-cutting issues relating to their use. Also through its more general policy responsibilities, TA has established relationships with industry users of these mechanisms that enable it to perform the reporting and assessment function from the perspective of the industry customers.

4) National Medal of Technology.

Responsibility for administering the National Medal of Technology was given to TA by the Stevenson-Wydler Technology Innovation Act. The National Medal of Technology is the highest honor for technological achievement, often considered America's "Nobel Prize for Technology." By annually recognizing individuals and companies that develop technology innovations enhancing U.S. job creation, economic prosperity, increased competitiveness, and an improved standard of living, TA contributes to better public understanding of the essential role technology plays in our economy and lives. Although the Medal program is highly successful, its impact is limited by relative lack of highly qualified nominations—particularly from under-represented communities—and by lack of broad public awareness of the program. With additional resources, TA would aggressively promote nominations of the highest quality from under-represented communities.

Proposed Program Areas:

1) Space Commercialization.
TA's Office of Space Commercialization (OSC) will facilitate the commercialization of space technologies by focusing on two priorities:

Space Market Analysis. The OSC will hire contractors to pursue a concerted effort of space market data collection, analysis, and dissemination. The OSC staff and contractors will compile a comprehensive, coordinated database of space industry statistics and trends, analyze the database, develop forecasts on future trends, and disseminate this information to government policy makers and to the public through freely available Internet updates. The market analysis effort will include a number of specific education and outreach activities mandated by Congress, such as workshops with industry and other Federal agencies, to increase awareness of commercial space opportunities. The expanded OSC will also engage in targeted research and analysis, such as that needed to support White House and interagency efforts to modernize and better manage the Global Positioning System.

Federal Use of Commercial Space Technology. OSC will initiate a pilot project to encourage Federal agencies to adopt commercially available space technologies. OSC will identify areas where commercially available technologies can be applied to a broad range of government agencies to boost worker productivity and increase efficiency. For example, within DoC, fuller integration of commercial satellite imagery and GPS data into Geographic Information Systems (GIS) could help NOAA track, anticipate, and mitigate natural disasters. Such technologies could also help the Census Bureau collect and track demographic data in a more timely and accurate manner. Moreover, these technologies can help policymakers make informed decisions by presenting complex economic trends and information visually and in a geographic context. After identifying the two or three most promising opportunities, OSC will sponsor a series of workshops, seminars, and technology fairs involving government agencies and commercial firms offering space-based products and services. For example, an event featuring "Space Technologies for Law Enforcement" might involve representatives from the Departments of Defense, Justice, and Treasury and demonstrate innovative applications of satellite imagery, GPS, and mobile satellite services. In the first year, these venues will be kept small and hosted locally, but if the pilot project is successful and interest grows, the effort could expand to include regional technology fairs in cooperation with state and local governments across the United States. All activities will be coordinated with existing outreach efforts at NASA, NOAA, and other agencies.

2) Partnership for a New Generation Vehicles.
PNGV will develop a strategy for assessing the impact of PNGV technologies on the automotive supplier base and state and regional economies. TA will develop an outreach strategy—using existing Federal programs, such as the U.S. Innovation Partnership and the Manufacturing Extension Partnership Program, as well as state and local governments and other key stakeholders—to prepare the supplier base for these changes. This strategy will lay the groundwork for efforts that will enable the supplier base to contribute to the

rapid commercialization of PNGV technologies, maximize suppliers' business opportunities, and minimize local economic discontinuities as automotive production shifts to advanced automotive technologies.

3) Technology Transfer.

To improve its monitoring of the results of government-industry research partnerships, TA will expand the breadth and depth of its reporting on agency technology transfer activities to include measurements that help characterize laboratory management of intellectual property as well as CRADA activity. The depth will be increased by collecting data that give a qualitative understanding of the outputs and outcomes of these activities, including the involvement of foreign partners. These improvements will require substantial coordination among the R&D agencies. Each agency currently has its own data collection systems for these activities, dictated by its own unique mission and serving mainly its internal management needs. TA will create a uniform set of data to be collected and establish a uniform reporting system. TA will increase its analytical capacity to address the data, as well as increasing and formalizing its procedures for gaining industry perspectives and assessing its experiences in partnering with Federal laboratories under these mechanisms.

4) National Medal of Technology.

TA will work to increase the visibility and impact of the National Medal of Technology program by using its national network of connections with industry, Federal R&D agencies, and state and local governments to:

- Increase the number of higher quality Medal nomination submissions (scores of 70 or above on the first evaluation round).
- Extend outreach to under-represented communities to increase Medal nominations from these communities and broaden general interest in the program.

Performance Measures: Outputs

At the proposed funding level, TA will generate the following outputs in each area:

Meeting Our Unfunded Mandates Initiative	
Program Area	**Output**
Space Commer-cialization	• Comprehensive database of space industry statistics and trends first available by 2002, regularly updated, and disseminated to government policy makers, industry, and the public through freely available Internet updates • Pilot projects to adopt or expand use of commercial space technologies in at least two government agencies by 2003 • By 2003, at least four workshops, seminars, or technology fairs annually involving government agencies and commercial firms offering space-based products and services to encourage broad adoption of commercial space technology
PNGV	• Develop strategy for assessing the impact of PNGV technologies on automotive supplier base and local and regional economies by 2002 • Develop outreach strategies to prepare automotive supplier base for full participation in PNGV technologies by 2003
Technology Transfer	• Proposal for uniform set of data and uniform reporting system proposed for Federal agency technology transfer activities by 2002 • Expanded biennial reports to Congress that more accurately describe Federal agency technology transfer activities and the management of those activities at each participating agency by 2003
National Medal of Technology	• Use Medal winners as ambassadors for the program through speaking and writing engagements by 2002 • Increase by 5 percent annually the number of media references to the Medal program

Performance Measures: Outcomes

1) Space Commercialization

The Department of Commerce anticipates that reliable data on the size and growth of the commercial space industry will lead to increased interest and investment in it. A dedicated commercial space market analysis program generating reliable statistics and other information will yield economic benefits in at least two major ways. First, national policy decision-makers will be able to make more informed judgments on issues affecting the commercial space industry. Policy decisions that require the Administration to strike a balance between economic and national security interests would be based on reliable economic data for the first time. Secondly, private sector companies and investors would also be able to base commercial space technology decisions on reliable government

economic data. Private sector projections are sometimes not widely trusted because of possible vested interests in promoting particular space technologies or companies.

Federal agencies will save money by using space-based technologies in common business applications, replacing inefficient operating techniques and systems and boosting Federal worker productivity. The government's demonstration of improved efficiency and productivity will catalyze greater private sector use of and investment in commercial space technologies to the broad benefit of the Nation and economy. Expanded private sector adoption of commercial space technologies will accelerate growth in the commercial space market, estimated to approach $200 billion worldwide by 2007. The President stated in his National Space Policy, "[e]xpanding U.S. commercial space activities will generate economic benefits for the Nation and provide the U.S. Government with an increasing range of space goods and services."

2) Partnership for a New Generation of Vehicles

The technological changes resulting from PNGV are expected to be major drivers of change that will present both opportunities and risks for the supplier industry and regional economies. On a national level, the goal is to achieve a strong global competitive position for America from these changes. On a state and local level, the goal will be to prepare local industries and companies for the new business opportunities and to promote the competitiveness of the U.S. automotive supplier base.

The $300 billion U.S. automotive manufacturing industry, the Nation's largest manufacturing employer, accounts for about four percent of the Nation's gross domestic product. DaimlerChrysler, Ford, and General Motors directly employ nearly 760,000 Americans, with a total U.S. payroll of more than $35 billion. Together with suppliers and dealers, the U.S. automotive industry accounts for 2.3 million jobs in more than 4,000 facilities and 22,000 dealerships located in every state in the Nation. Over the last 25 years, competition from foreign-owned and foreign-based manufacturers has been a major concern. The magnitude of PNGV-driven changes will likely be even larger than the major changes resulting from the rapid globalization of the automotive industry over the last 25 years, which led to very strong foreign competition, and in some cases, great opportunities for many American companies.

3) Technology Transfer

Government-industry technology transfer programs have been expanding for 15 years. In-depth analysis of these partnerships will reveal more clearly the extent of their effectiveness in fostering new commercial technology, and guide policy decisions to expand, terminate, or change the programs for optimal economic impact.

4) National Medal of Technology

A modest investment in the Medal program yields substantial benefits in educating citizens about the importance of technology in our economy and our lives, and in drawing under-represented communities into the forefront of American technology.

Department of Commerce
Technology Administration
Office of the Under Secretary/Office of Technology Policy
Salaries and Expenses
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollars in thousands)

Activity: Under Secretary for Technology/Office of Technology Policy
Subactivity: Under Secretary for Technology/Office of Technology Policy
Program Change: Meeting unfunded mandates

Object Class		2001 Increase/ (Decrease) Obligations
11	Personnel compensation	
11.1	Full-time permanent	$0
11.9	Total personnel compensation	0
12.1	Civilian personnel benefits	0
21	Travel and transportation of persons	45
22	Transportation of things	9
23.3	Communications, utilities and miscellaneous charges	10
24	Printing and reproduction	60
25.1	Advisory and assistance services	80
25.2	Other services	248
25.3	Purchases of goods and services from Government accounts	0
25.5	Research and development contracts	0
25.7	Operation and maintenance of equipment	0
26	Supplies and materials	27
31	Equipment	21
32	Land and structures	0
41	Grants, subsidies and contributions	0
99	Direct obligations	500

[This page is left blank intentionally]

Exhibit 16

Department of Commerce
Technology Administration
Office of the Under Secretary/Office of Technology Policy
Salaries and Expenses
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	1999 Actual	2000 Currently Available	2001 Base	2001 Estimate	Increase/ (Decrease) Over 2001 Base
11	Personnel compensation					
11.1	Full-time permanent	$2,577	$2,906	$2,999	$2,999	0
11.3	Other than full-time permanent	330	346	365	365	0
11.5	Other personnel compensation	84	84	84	84	0
11.9	Total personnel compensation	2,991	3,336	3,448	3,448	0
12.1	Civilian personnel benefits	506	579	626	626	0
13	Benefits for former personnel	51	51	51	51	0
21	Travel and transportation of persons	291	291	310	355	$45
22	Transportation of things	24	24	24	33	9
23.1	Rental payments to GSA	573	586	599	599	0
23.2	Rental payments to others	0	0	0	10	10
23.3	Communications, utilities, and miscellaneous charges	106	109	111	111	0
24	Printing and reproduction	111	98	97	157	60
25.1	Advisory and assistance services	210	211	218	298	80
25.2	Other services	806	812	873	1,121	248
25.3	Purchases of goods and services from government accounts	1,083	1,104	1,110	1,110	0
25.7	Operation and maintenance of equipment	2	2	2	2	0
26	Supplies and materials	261	236	238	265	27
31	Equipment	219	214	199	220	21
41	Grants, subsidies, and contributions	3,608	310	310	310	0
42	Insurance claims and indemnities	0	0	0	0	0
99	Total Obligations	10,842	7,963	8,216	8,716	500

	Object Class	1999 Actual	2000 Currently Available	2001 Base	2001 Estimate	Increase/ (Decrease) Over 2001 Base
99	Total Obligations	10,842	7,963	8,216	8,716	500
	Less Prior Year Recoveries					
	Less Prior Year Unobligated Balance	(1,638)	(18)			
	Plus Prior Year Unobligated Balance	18				
	Plus Unobligated Balance Expiring	273				
	Total Requirements	9,495	7,945	8,216	8,716	500

Personnel Data

Full-time equivalent employment:					
Full-time permanent	38	45	45	45	0
Other than full-time permanent	5	5	5	5	0
Total	43	50	50	50	0
Authorized Positions:					
Full-time permanent	52	52	52	52	0
Other than full-time permanent	0	0	0	0	0
Total	52	52	52	52	0

Exhibit 17

Department of Commerce
Technology Administration
Office of the Under Secretary/Office of Technology Policy
Salaries and Expenses
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	2001 Adjustment to Base	2001 Base	2001 Estimate	Increase/ (Decrease) over 2001 Base
11	Personnel Compensation				
11.1	Full-time permanent				
	Executive level	$9	$15	$15	$0
	Senior executive service	16	695	695	0
	General schedule	68	2,289	2,289	0
	Subtotal	93	2,999	2,999	0
11.3	Other than full-time permanent				
	Senior executive service	0	51	51	0
	General schedule	7	222	222	0
	Experts & consultants	12	92	92	0
	Subtotal	19	365	365	0
11.5	Other personnel compensation				
	Overtime	0	5	5	0
	SES performance awards	0	5	5	0
	Cash awards	0	74	74	0
	Other	0	0	0	0
	Subtotal	0	84	84	0
11.9	Total personnel compensation	112	3,448	3,448	0

	Object Class	2001 Adjustment to Base	2001 Base	2001 Estimate	Increase/ (Decrease) over 2001 Base
12.1	Civilian personnel benefits				
	Civil service retirement	(14)	61	61	0
	Federal employees' retirement	34	244	244	0
	Contribution to civil service retirement fu	0	3	3	0
	Thrift savings plan	7	22	22	0
	Federal Insurance Contribution Act	20	137	137	0
	Health insurance	11	87	87	0
	Life insurance	0	4	4	0
	Employees' Compensation Fund	(11)	29	29	0
	Other	0	39	39	0
	Subtotal	47	626	626	0
13	Benefits for former personnel				
	Severance pay	0	0	0	0
	Unemployment compensation	0	51	51	0
	Subtotal	0	51	51	0
21	Travel and transportation of persons				
	Common carrier	8	118	134	16
	Mileage	0	51	51	0
	Per diem/actual	11	135	157	22
	Other	0	6	13	7
	Subtotal	19	310	355	45
22	Transportation of things	0	24	33	9
23.1	Rental payments to GSA	13	599	599	0
23.2	Rental payments to others	0	0	10	10

	Object Class	2001 Adjustment to Base	2001 Base	2001 Estimate	Increase/ (Decrease) over 2001 Base
23.3	Communications, utilities, and misc. charges				
	Rental of ADP equipment	0	0	0	0
	Rental of office copying equipment	0	0	0	0
	Other equipment rental	0	8	8	0
	Federal telecommunications system	0	1	1	0
	Other telecommunications services	2	77	77	0
	Postal Service by USPS	0	25	25	0
	Other	0	0	0	0
	Subtotal	2	111	111	0
24	Printing and reproduction				
	Publications	6	83	125	42
	Other	(7)	14	32	18
	Subtotal	(1)	97	157	60
25.1	Advisory and asssistance services				
	Management & professional support servi	2	55	75	20
	Special studies and analyses	5	163	223	60
	Engineering and technical services	0	0	0	0
	Subtotal	7	218	298	80
25.2	Other services				
	Training	35	60	60	0
	ADP Services	1	3	3	0
	Other	25	810	1,058	248
	Subtotal	61	873	1,121	248

	Object Class	2001 Adjustment to Base	2001 Base	2001 Estimate	Increase/ (Decrease) over 2001 Base
25.3	Purchases of goods and services from Government accounts				
	GA, WCF	3	710	710	0
	Other	3	400	400	0
	Subtotal	6	1,110	1,110	0
25.7	Operation and maintenance of equipment	0	2	2	0
26	Supplies and materials				
	Office supplies	2	222	249	27
	ADP supplies	0	16	16	0
	Other	0	0	0	0
	Subtotal	2	238	265	27
31	Equipment				
	Office machines and other equipment	1	77	77	0
	ADP equipment	2	122	143	21
	Other	0	0	0	0
	Subtotal	3	199	220	21
41	Grants, subsidies, and contributions	0	310	310	0
99	Total Obligations	271	8,216	8,716	500

Department of Commerce
Technology Administration
Office of the Under Secretary/Office of Technology Policy

Salaries and Expenses
APPROPRIATION LANGUAGE AND CODE CITATIONS

"For necessary expenses for the Under Secretary for Technology/Office of Technology Policy, $8,716,000."

15 U.S.C. 3704(a)-(c)	15 U.S.C. 1533
15 U.S.C. 3704(d)	15 U.S.C. 1535
15 U.S.C, 3704f	15 U.S.C. 4603 and 4603a
15 U.S.C. 3704a	15 U.S.C. Appendix 5801
15 U.S.C. 3710(g)	22 U.S.C. 2656d(a)
15 U.S.C. 3711	22 U.S.C. 5872
15 U.S.C. 3711 Note	35 U.S.C. 206-209, and
15 U.S.C. 1511e	Executive Order 10096

15 U.S.C. 3704(a)-(c) establishes the Technology Administration and places within it the National Institute of Standards and Technology, the National Technical Information Service, and the Office of Technology Policy; creates the positions of Under Secretary for Technology and Assistant Secretary for Technology Policy; provides for the management of the Technology Administration by the Under Secretary and the supervision of its agencies, programs and activities; and provides the basic authority for preparing technology policy analyses, experiments, studies, and reports.

15 U.S.C. 3704(d) contains basic authority for providing information and services relating to Japanese technical activities, developments and literature.

15 U.S.C. 3704f establishes the Experimental Program to Stimulate Competitive Technology (EPSCoT) to strengthen the technological competitiveness of states.

15 U.S.C. 3704a establishes within the Technology Administration a Clearinghouse on State and Local Initiatives on Productivity, Technology and Innovation.

15 U.S.C. 3710(g) authorizes the Secretary to provide services to Federal agencies for the commercialization of technology developed at Federal laboratories, to monitor agency use of cooperative R&D agreements as a means of transferring federally funded technology to the private sector, and to prepare related reports.

15 U.S.C. 3711 provides for the award by the President of the National Medal of Technology based upon recommendations of the Secretary of Commerce.

15 U.S.C. 3711 note establishes a separate nomination category known as Environmental Technology for the National Technology Medal.

15 U.S.C. 1511e establishes an Office of Space Commercialization within the Department of Commerce to promote commercial investment of space.

15 U.S.C. 1533 provides for the establishment of the Commerce, Science, and Technology Fellowship Program, which is administered by the Office of the Under Secretary, to enhance the career development of promising Federal employees.

15 U.S.C. 1535 contains basic authority for space commerce.

15 U.S.C. 4603 and 4603a names the Under Secretary for Technology to the Advisory Committee on Federal Participation in Sematech and provides for the issuance of certain reports.

15 U.S.C. Appendix 5801 authorizes and encourages The Office of Space Commercialization "to conduct trade missions to appropriate independent states of the former Soviet Union for the purpose of familiarizing United States aerospace industry representatives with space hardware, space technologies, and space services that may be available from the independent states, and with the business practices and overall business climate in the independent states. The Office of Space Commercialization shall also advise NASA of potential acquisition of the above items by the independent states, specifically any anticompetitive issues the office may observe."

22 U.S.C. 2656d(a) provides for consultations between the Secretary of State and Secretary of Commerce on international science and technology agreements, specifically recognizing their potential impact on Federal technology management policies.

22 U.S.C. 5872 repeats 15 U.S.C. Appendix 5801 and further authorizing the Office of Space Commercialization to monitor certain activities in this area.

35 U.S.C. 206-209 and E.O. 10096 provide for the promulgation of policies and regulations concerning the ownership of patents between agencies and their contractors and employees and the licensing of federally owned inventions and also for the preparation of certain reports regarding statutory invention registrations as an alternative to formal patents.

DEPARTMENT OF COMMERCE
TECHNOLOGY ADMINISTRATION
Office of the Under Secretary/Office of Technology Policy
Salaries and Expenses
SCHEDULE OF ADVISORY AND ASSISTANCE SERVICES
(Obligations in thousands of dollars)

Exhibit 34

	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate
Management and professional support services	$52	$53	$75
Studies, analyses, and evaluations	158	158	223
Total	210	211	298

Management and professional services are used to provide assistance to U.S. citizens, corporations, and policy makers in understanding and dealing with challenges and opportunities involving the globalization of science, technology and industrial research and development.

Special studies and analysis to improve process and procedures for the EPSCoT Program.

Department of Commerce
Technology Administration
Office of the Under Secretary/Office of Technology Policy
Salaries and Expenses

PERIODICALS, PAMPHLETS, AND AUDIOVISUAL PRODUCTS
(Obligations in thousands)

	1998 Actual	1999 Actual	2000 Estimate	2001 Estimate
Periodicals	$5	$5	$5	$5
Pamphlets	5	5	5	5
Audiovisuals	0	0	0	0
Total	10	10	10	10

Department of Commerce
Technology Administration
Office of the Under Secretary/Office of Technology Policy

Average Salary

	1999 Actual	2000 Estimate	2001 Estimate
Average ES salary	$125,900	$131,943	$136,825
Average Career Path Salary	65,658	69,036	71,590